Oregon
Kate Brown, Governor

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July 18, 2016 electronic delivery

David Harvey
Director of Environmental, Health and Safety
The Greenbrier Companies
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RE: DEQ Initial Comments on Revised Supplemental Riverbank Area 2 Focused Feasibility Study
Gunderson site
ECSI #1155

Dear Dave:

Thank you for the timely submittal of the Supplemental Riverbank Area 2 Focused Feasibility Study, revised in response to DEQ and EPA comments on the previous submittals. In general, DEQ found the document much improved and generally responsive to our comments. As I discussed with you on the phone, DEQ's review of the document was delayed. In part, this was due to receipt of EPA's comments on the document and DEQ's view that the comments potentially conflicted with DEQ's understanding of application of the 2005 EPA/DEQ Joint Source Control Strategy for Portland Harbor. EPA's comments introduced a novel approach to demonstration of recontamination prevention, which could be applied to other sites working through source control evaluations in Portland Harbor. As such, resolution of this issue with EPA was necessary prior to passing the comments through for your consideration. DEQ and EPA met and discussed the comments on July 12, 2016 and DEQ prepared a memo in response, indicating which comments would not be carried forward. I have attached DEQ's memo, along with EPA's full comment set, for your consideration.

In addition, please find DEQ's initial comments on the revised Supplemental Riverbank Area 2 FFS below. Please note that, in order to evaluate your conclusions on the risk screening and hot spot evaluations presented in the document, DEQ is requesting submittal of the complete soil data set in electronic spreadsheet format. While it is likely that source control actions for Area 2 can move forward as recommended in the FFS, evaluation of the data and assumptions of the risk screening and hot spot evaluations by DEQ toxicologists is needed. This will allow DEQ toxicologists to confirm the source control conclusions and SCM evaluations and make recommendations for any needed actions to complete the upland remedial process. In an effort to keep the source control process moving forward, DEQ prepared the following initial comments, but acknowledge that additional comments may yet be forthcoming that you will also need to address.

Comments

Section 1.3 – DEQ assumes that this section describes organization of the FFS rather than a "work plan."

Section 3.2 – DEQ notes that, in addition to the current composition of blast grit, environmental impacts could be associated with past formulations, lack of containment and liberation of contaminants through use of blast grit. This appears to be addressed through current operational practices to minimize use of grit and contain grit and liberated contaminants during its use.

Section 3.3.3 – A discussion of metals is missing from the investigations at the launch ways, though metals data is included in the tables presented at the end of the report.

Section 3.3.4 – DEQ assumes the second paragraph intends to convey that the list of chemicals discussed *were* detected, but not at concentrations of concern. Additionally, DEQ notes that while screening against PRGs may eliminate further consideration of these chemicals for source control purposes, they must still be considered in assessing upland risk (human and ecological), as warranted by location on the bank relative to mean high water.

Section 4.0 – DEQ notes that the SLVs referenced are from Table 3-1 of the 2005 EPA/DEQ Joint Source Control Strategy and the PRGs referenced are from the July 2015 draft values provided in EPA's draft FS for Portland Harbor. DEQ also notes that the PRGs have since been updated with the June 2016 release of EPA's draft final FS and may be revised again with issuance of the Portland Harbor Record of Decision.

Sections 5 and 6 – DEQ requests submittal of the entire soil sampling dataset in electronic spreadsheet format, so that DEQ toxicologists can conduct screening level risk hot spot evaluations (for both human health and ecological exposure) to confirm source control conclusions and SCM evaluations made in the report and recommend additional actions, if warranted, to complete remedial activities beyond those addressing control of potential sources to Portland Harbor.

Section 5.0 – DEQ notes that, per direction given by DEQ in previous comments, the evaluation of risk to human and terrestrial receptors included samples of riverbank soil only in areas above mean high water.

Sections 5.1.1 through 5.1.5 – While default background concentrations for metals are provided in the relevant tables presented at the end of the report, these values are not discussed in relation to exceedances in the risk screening evaluation. Particularly for arsenic, DEQ notes that this may be a useful line of evidence to include in the evaluation.

Section 9.2 – Clarification is needed as to how the wattle system prevents worker contact with soil containing contaminants exceeding RBCs.

Section 10.1 – A monitoring task bullet must be added. If areas of erosion are noted, a sample of eroding soil must be collected and analyzed for contaminants previously found to be elevated in bank soils, as well as those found elevated in AOPC 19 (aluminum, barium, cadmium, copper, iron, manganese, mercury, silver, zinc, bis(2-ethylhexyl)phthalate, PCBs, PAHs, dioxins/furans, aldrin, delta-HCCH, dieldrin, endrin, DDx, chloroethane). If results indicate the potential for actionable recontamination of river sediment or unacceptable in-water or terrestrial risk, improved or additional measures to control erosion or eliminate exposure must be immediately applied.

Sections 13.2.3, 13.2.4 and 14.3.1 – Discussion is needed to address the on-going use of blast grit and any contaminants liberated during its use with regard to effectiveness of the remedial technologies proposed. DEQ notes that grit and associated by-product accumulation may affect frequency of cap rejuvenation/replacement for 13.2.3 and costs evaluated in 14.3.1. In addition, concrete proposed in 13.2.4 may facilitate mobilization of grit and associated by-products to the river. Please provide additional information on spent grit containment and management and any needed re-evaluation of these alternatives.

Figures 2, 3, 7, 12, 13, 16 & 17 – These figures all have an unlabeled dashed line (or solid bold line on 17) that extends along sections of the river. Please clarify what this is intended to show or remove them. In addition, it would be helpful to have mean high water shown on all figures. Also, Figures 16 & 17 show negative NAV88 elevations in the side view schematics, which seems to be in error.

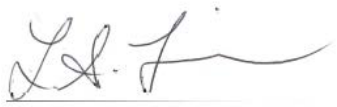
Table 14 – DEQ assumes that the lowest of the values was used for screening, but it would be helpful to have values used highlighted in the table to confirm this.

EPA Comments – Please address EPA's Primary Comment #5 (attached) with regard to the integrity of current and future source control measures and the in-water remedy, which could be affected by wave action produced

during on-going barge launching activities. In addition, please consider EPA's complete comment set (and DEQ's accompanying memo) at your discretion.

Please deliver the requested data in electronic format within two weeks of receipt of this letter and begin preparing a response to address DEQ and EPA comments. An amendment to the revised Supplemental Area 2 Riverbank FFS is acceptable for addressing comments, but you may want to consider preparing a final revision to the document. After receipt of the requested data, DEQ will communicate the results of our evaluation to you, which may include additional comments for you to address. Following completion of our evaluation, we will discuss a timeline for submission of your response, either in a single submittal or separately. As always, I am available to discuss and clarify these comments or answer other questions on the process.

Sincerely,



L. Alexandra Liverman
Portland Harbor Stormwater Coordinator

Attachments: EPA comments & DEQ memo in response to EPA comments

ec: Chris Breemer, Cascadia Associates
Dan Hafley, DEQ
Eva DeMaria, EPA

cc: ECSI #1155

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF ENVIRONMENTAL CLEANUP

MEMORANDUM

DATE: June 10, 2016

SUBJECT: Supplemental Area 2 Riverbank Focused Feasibility Study
Gunderson LLC Facility
ECSI #1155
April 30, 2016

FROM: Eva DeMaria, Remedial Project Manager

TO: Alex Liverman, Project Manager
Oregon Department of Environmental Quality

Following are the United States Environmental Protection Agency's (EPA's) comments on the April 30, 2016 Supplemental Area 2 Riverbank Focused Feasibility Study for the Gunderson LLC facility. Cascadia Associates, LLC on behalf of Gunderson LLC prepared the Focused Feasibility Study (FFS). The Gunderson LLC facility is located at 4350 NW Front Avenue, Portland, Oregon and is listed in DEQ's cleanup program as ECSI #1155. The site is located on the west bank of the Willamette River near River Mile 9W.

EPA understands that the purpose of the Supplemental Area 2 FFS is to address comments from DEQ (January 29, 2016) and EPA (November 9, 2015) made to the initial Area 2 FFS (September 18, 2015). The supplemental FFS evaluates and recommends riverbank source control measures (SCMs) to prevent contaminated riverbank soil in Area 2 from entering the Willamette River. Interim SCMs have been implemented in Source Control Areas 3, 4, and 5, and the FFS did not evaluate additional SCMs for those Source Control Areas. Additionally, SCMs for Source Control Area 1 were not evaluated in the FFS because this area is proposed to be addressed concurrent with the in-water remedy. The FFS primarily evaluated SCMs for Source Control Area 2.

EPA's comments are presented in the following sections. Comments are separated as: "Primary," identifying concerns that must be resolved to achieve the assessment's objective; "To Be Considered," comments that, if addressed or resolved, would reduce uncertainty, improve confidence in the document's conclusions, and/or best support the assessment's objectives; and "Matters of Style," comments that substantially or adversely affect the presentation or understanding of the technical information provided in the report.

Primary Comments

1. Sections 10 and 16.2 outline the monitoring procedures for evaluating the effectiveness of the proposed SCMs. Procedures outlined include material quality control checks, construction

monitoring, monitoring the surface of the lower bulkhead to confirm erodible materials are not migrating from the launch way to the river, and evaluation of re-vegetation success. Section 7.2 describes that the goal of source control measures is to prevent riverbank soil with chemicals at concentrations above the screening level value (SLV) or draft preliminary remediation goal (PRG) from entering the river. It is unclear how visual monitoring will be compared to the SLV or PRG values.

The monitoring program for all source control areas should include chemical analysis to verify the erosion controls are preventing contaminated riverbank soil above PRGs from entering the Willamette River. This may require baseline monitoring of surface sediments below the area where SCMs have been implemented and subsequent monitoring to determine whether contaminated riverbank soil is still being deposited in the Willamette River. Long-term monitoring may be implemented to assess the effectiveness of the in-water remedy that is likely to be implemented offshore of the Gunderson LLC Facility. Monitoring of the riverbank soil SCMs should be incorporated into the long-term monitoring for the in-water remedy.

Monitoring should compare chemical results to the updated PRGs in the Portland Harbor Feasibility Study, in particular, those related to Remedial Action Objective (RAO) 9 for riverbank soils and the contaminants of concern (COCs) related to Sediment Decision Unit (SDU) RM9W.

2. Section 11 describes the re-evaluation of Source Control Areas 3, 4, and 5, where SCMs have been implemented, to determine if additional measures are needed to prevent the erosion of riverbank soil. A supplemental monitoring plan should be developed that includes baseline monitoring, monitoring objectives, and describes how the proposed monitoring program will achieve those objectives. Monitoring should include chemical analysis to determine whether recontamination is occurring and the source of any observed recontamination. Any in-water monitoring proposed in the monitoring plan should be incorporated into any long-term monitoring required in conjunction with remedial measures to address contaminated sediments conducted offshore of the Gunderson LLC Facility.

3. Section 13.1, page 39 – Further explanation should be included in the FFS to describe why physical and chemical treatment was eliminated from further consideration. The evaluation of treatment should consider the results of the hot spot evaluation presented in Section 6. Physical and chemical treatment could be effective when applied with other approaches and could have been retained in the FFS. Additionally, the FFS should include additional documentation on the cost for physical and chemical treatments that could be applied to Source Control Area 2 to support screening decisions.

4. Contaminated sediments offshore of Source Control Area 1 are likely to be addressed as part of the in-water remedy, but the FFS should acknowledge that the in-water remedy has not been selected and that SCM may be required for Source Control Area 1. The FFS should describe how the proposed SCM is compatible with and general implementation concepts consistent with the in-water sediment remedy.

5. The FFS should evaluate if wave action from barge launching activities at the Launch Way has the potential erode the recommended SCM for:

    - Source Control Area 2
    - Interim SCMs for Source Control Areas 3, 4, and 5,
    - Future in-water remedy that includes addressing contaminated riverbank soil at Source Control Area 1.

To Be Considered

1. Section 3.3.4, Page 9 – The last paragraph states that "The following chemicals were not detected at concentrations that do not exceed or only slightly exceed draft PRGs…." This appears to be a misstatement. Clarify and correct, if necessary.

2. Section 11.1, Page 34 – Section 9.5 describes that inadequate time has passed to evaluate the effectiveness of interim SCMs. This is likely due to vegetation having inadequate amount of time to establish growth. Section 11.1 states bioengineering protects the upper portion of this area from erosion via overland flow. Section 11 should be revised to describe that monitoring of bioengineering SCMs at Source Control Area 5 is ongoing because the vegetation has not been established.

3. Section 13, page 39 – Two new sections should be added to Section 13 with a description for removal and institutional controls, which were retained during the screening of general approaches. A detailed description should be included for removal and institutional controls so that these can be evaluated side by side with containment/engineering controls, which are described in detail in Section 13. For example, removal actions may be implementable at an arsenic hot spot location. Additionally, descriptions for physical and chemical treatments should also be included to support the side-by-side comparison with other general response actions.

Matters of Style

1. Section 4.1, Page 15 - Last paragraph cites Section 3.3.6. This should be Section 3.3.4.

2. Section 13.2.3, Pages 41 and 42 – The calculated depth of water for sheet flow was 0.05 inches, but the evaluation takes a conservative approach and assumes a depth of 0.5 inches. Page 42 describes that a conservative flow depth of ½ inch (0.042 feet) was used to determine the mean diameter of the stone size. Clarification of the assumptions and calculations would be beneficial; specifically, providing rationale for the calculations using a factor of 10 to be conservative and then applying a safety factor of 1.5 (FHWA guidance).

3. Section 14.1, page 44 – Sections 14.1 Effectiveness and 14.2 Implementability mixes the subjects of implementability across both sections. These sections should be revised to discuss implementability

in only one section for clarity. For example, the Cellular Confinement Systems (CCS) included as the second bullet under Section 14.1 describes that CCS can be effective, but is not implementable because workers cannot safely move across CCS.

4. Figure 3 – The leader for Source Control Area 1 points to Source Control Area 2 and the leader should be adjusted for clarity.

State of Oregon
Department of Environmental Quality **Memorandum**

Date: July 13, 2016

To: Eva DeMaria, EPA Region 10 Remedial Project Manager
Davis Zhen, EPA Region 10 Site Cleanup Unit 2 Manager

From: Alex Liverman, DEQ Portland Harbor Stormwater Coordinator
Matt McClincy, DEQ Portland Harbor Source Control Coordinator

Through: Scott Manzano, DEQ NWR Cleanup Manager

Subject: EPA June 10, 2016 Memo on comments on Gunderson Supplemental Area 2 Riverbank FFS April 30, 2016

Following receipt of EPA's comments, DEQ discussed the Primary Comments with EPA at a regularly scheduled source control coordination meeting. DEQ provides the following responses (*in italics*) to each Primary Comment below, in alignment with our discussion. DEQ will include this memo with submittal of EPA's complete comment set to Gunderson for consideration.

Primary Comments

1. Sections 10 and 16.2 outline the monitoring procedures for evaluating the effectiveness of the proposed SCMs. Procedures outlined include material quality control checks, construction monitoring, monitoring the surface of the lower bulkhead to confirm erodible materials are not migrating from the launch way to the river, and evaluation of re-vegetation success. Section 7.2 describes that the goal of source control measures is to prevent riverbank soil with chemicals at concentrations above the screening level value (SLV) or draft preliminary remediation goal (PRG) from entering the river. It is unclear how visual monitoring will be compared to the SLV or PRG values.

The monitoring program for all source control areas should include chemical analysis to verify the erosion controls are preventing contaminated riverbank soil above PRGs from entering the Willamette River. This may require baseline monitoring of surface sediments below the area where SCMs have been implemented and subsequent monitoring to determine whether contaminated riverbank soil is still being deposited in the Willamette River. Long-term monitoring may be implemented to assess the effectiveness of the in-water remedy that is likely to be implemented offshore of the Gunderson LLC Facility. Monitoring of the riverbank soil SCMs should be incorporated into the long-term monitoring for the in-water remedy.

Monitoring should compare chemical results to the updated PRGs in the Portland Harbor Feasibility Study, in particular, those related to Remedial Action Objective (RAO) 9 for riverbank soils and the contaminants of concern (COCs) related to Sediment Decision Unit (SDU) RM9W.

Both active erosion and elevated concentrations of contaminants must be present for the pathway to the river to be considered complete. Following the 2005 EPA/DEQ Joint Source Control Strategy process, DEQ required Gunderson to implement bank stabilizing measures to prevent potential erosion, which would make the pathway incomplete. In addition, PRG values for RAO 9 are based on sediment concentrations, many of which are below risk-based upland values and concentrations measured in banks throughout the Portland Harbor study area.

This adds significant uncertainty to making determinations regarding the level of concern associated with magnitude of exceedance as to actionable recontamination or unacceptable risk to river receptors.

Establishment of baseline conditions in sediment immediately off shore of the Area 2 bank stabilization measures for detection of increasing trends attributable to bank erosion would be complicated by several factors. These include: elevated contaminant concentrations in the most recent sediment sampling and the inability to distinguish between multiple different potential upland and in-water sources of sediment contamination (e.g., bank erosion, historical dumping, past and present stormwater outfall discharges, in-stream suspension and redistribution of contaminated sediment). DEQ and EPA agreed that in-stream sediment monitoring post-remedy may provide more appropriate conditions to judge the effectiveness of riverbank engineering controls. In order for such in-water monitoring to be useful in determining if bank stability measures are effective, continued EPA/DEQ coordination is needed to develop a joint approach to long-term post-remedy monitoring, which includes methods to trace whether any detected recontamination is from upland or in-water sources.

To ensure that the bank erosion pathway remains incomplete, DEQ will rely on regular observation intervals to gage performance of the erosion prevention measures and will consider adding a requirement for sampling and analysis of any bank material observed to be eroding.

2. Section 11 describes the re-evaluation of Source Control Areas 3, 4, and 5, where SCMs have been implemented, to determine if additional measures are needed to prevent the erosion of riverbank soil. A supplemental monitoring plan should be developed that includes baseline monitoring, monitoring objectives, and describes how the proposed monitoring program will achieve those objectives. Monitoring should include chemical analysis to determine whether recontamination is occurring and the source of any observed recontamination. Any in-water monitoring proposed in the monitoring plan should be incorporated into any long-term monitoring required in conjunction with remedial measures to address contaminated sediments conducted offshore of the Gunderson LLC Facility.

Per DEQ's response to Primary Comment #1 above, to ensure that the bank erosion pathway remains incomplete, DEQ will rely on regular observation intervals to gage performance of the erosion prevention measures and will consider adding a requirement for sampling and analysis of any bank material observed to be eroding.

3. Section 13.1, page 39 – Further explanation should be included in the FFS to describe why physical and chemical treatment was eliminated from further consideration. The evaluation of treatment should consider the results of the hot spot evaluation presented in Section 6. Physical and chemical treatment could be effective when applied with other approaches and could have been retained in the FFS. Additionally, the FFS should include additional documentation on the cost for physical and chemical treatments that could be applied to Source Control Area 2 to support screening decisions.

DEQ will consider whether additional explanation is needed in the FFS for exclusion of physical and chemical treatment or whether these should be considered in combination with other approaches and consistency with DEQ hot spot rules. Because DEQ's hot spot rules are not ARARs for Portland Harbor, DEQ will determine their relevance to source control measures.

4. Contaminated sediments offshore of Source Control Area 1 are likely to be addressed as part of the in-water remedy, but the FFS should acknowledge that the in-water remedy has not been selected and that SCM may be required for Source Control Area 1. The FFS should describe how the proposed SCM is compatible with and general implementation concepts consistent with the in-water sediment remedy.

While the JSCS purposely included overlap in responsibility for addressing bank contamination, EPA and DEQ agreed that bank areas with proposed active in-water remedy components would be EPA's responsibility to ensure compatibility of bank and in-water remedies. Because effective interim measures are in place, source control is addressed at the lower bulkhead and additional measures need not be proposed in the FFS. Should EPA determine during the in-water remedial design process that additional or more permanent riverbank measures are required at the existing lower bulkhead, DEQ anticipates that EPA will continue to coordinate with DEQ on selection and construction of the additional upland measure(s) as part of the in-water remedial program..

5. The FFS should evaluate if wave action from barge launching activities at the Launch Way has the potential to erode the recommended SCM for:
• Source Control Area 2
• Interim SCMs for Source Control Areas 3, 4, and 5,
• Future in-water remedy that includes addressing contaminated riverbank soil at Source Control Area 1.

DEQ agrees that additional information could be provided in the FFS on barge launching wave action and will carry this comment forward to Gunderson.